Space Weather Forecast

Issued on Wednesday, 07 August 2024 at 01:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate to High activity expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate over the period, with a low level Moderate class flare at 06/0303 from a modest size bi-polar region in the northeast. There are a total of eight numbered spot groups on the disc. The largest of these consist of three rather large bi-polar groups in the southern hemisphere that stretch from near centre disc, towards the east limb. Each contain a large lead spot with numerous intermediate and trailer spots, with continued growth in the two western-most groups. These also contain the most magnetic complexity of the current spot groups. Remaining spot groups are smaller and magnetically simpler, with only small changes observed in appearance.

No Earth-directed Coronal Mass Ejections (CMEs) have been identified in imagery.

Solar Wind / Geomagnetic Activity: Solar wind speeds fluctuated at slightly elevated to near background levels on a fairly flat trend. The magnetic field of the solar wind was weak, while the north-south component was weak and variable in direction. Geomagnetic activity remained Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was elevated but below the S1 Minor Radiation Storm level at the start of the period, but gradually eased and is now close to background.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate to High solar activity is forecast to continue, with occasional Moderate-class flares expected and with a chance of isolated Strong-class flares.

Solar Wind /Geomagnetic Activity: here are no Earth-directed CMEs, with no significant coronal hole fast wind arrivals expected in the period. However, weak passing transients remain possible due to the number of off the Earth-Sun line eruptions that have occurred. Geomagnetic activity is forecast to be mainly Quiet with isolated Unsettled intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist around background levels, but with a chance of further enhancement given the occurrence of any notable flares. This gives a slight chance of reaching or exceeding the S1 Minor Radiation Storm level.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	80	80	80	80
Very Active	R3 to R5 X	No	20	20	20	20

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	20	20	20
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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